

WHAT IS CLAIMED IS:

1. A laser driver comprising:
a PNP transistor current source;
an inductor coupled to the PNP transistor current source;
a switch coupled to the inductor; and
a current sink coupled to the switch,
wherein the PNP transistor current source supplies a first current to a laser if the switch is closed and a second current to the laser if the switch is open and wherein the PNP transistor current source, inductor, switch, and current sink are on a single semiconductor chip.
2. The laser driver of claim 1, wherein the inductor is sized to increase the bandwidth of the PNP transistor current source to a desired value.
3. The laser driver of claim 1, wherein the inductor is sized to reduce intersymbol interference of an output of the laser to a desired level.
4. The laser driver of claim 1, wherein the first current comprises a bias current and the second current comprises a modulation current and the bias current.
5. The laser driver of claim 1, wherein the switch comprises an NPN transistor switch.
6. The laser driver of claim 1, wherein the PNP transistor current source comprises a PNP transistor current mirror.
7. The laser driver of claim 1, wherein the laser is a laser diode.

8. The laser driver of claim 1, wherein the switch opens and closes in response to a data signal.
9. A laser driver comprising:
 - a first PNP transistor current source coupled to a first inductor;
 - a second PNP transistor current source coupled to a second inductor;
 - a first switch coupled to the first inductor;
 - a second switch coupled to the second inductor; and
 - a current sink coupled to the first switch and the second switch,wherein the first PNP transistor current source and the first inductor and the second PNP transistor current source and the second inductor are configured to provide a differential current to a laser diode based on a first position of the first switch and a second position of the second switch.
10. The laser driver of claim 9, wherein the first PNP transistor current source comprises a first PNP transistor current mirror and the second PNP transistor current source comprises a second PNP transistor current mirror.
11. The laser driver of claim 9, wherein the first switch and the second switch operate in response to a data signal.
12. The laser driver of claim 11, wherein the data signal sets an output of the laser diode to one of a logic high optical signal and a logic low optical signal.
13. The laser driver of claim 9, wherein the first inductor and the second inductor are sized to reduce intersymbol interference of an output of the laser diode to a desired level.
14. The laser driver of claim 9, wherein the first PNP transistor current source, the second PNP transistor current source, the first switch, the second

switch, the first inductor, the second inductor, and the current sink are on a single semiconductor chip.

15. A method for driving a laser comprising:
 - receiving a data signal;
 - operating a switch in response to the data signal;
 - supplying a first current from a PNP transistor current source through an inductor minus a second current to a laser if the switch is closed; and
 - supplying the first current from the PNP transistor current source through the inductor to the laser if the switch is open.
16. The method of claim 15, wherein the first current comprises a bias current and a modulation current.
17. The method of claim 15, wherein the second current comprises a modulation current.
18. The method of claim 15, wherein the switch comprises a transistor switch.
19. The method of claim 18, wherein the transistor switch comprises an NPN transistor switch.
20. The method of claim 15, wherein the switch is closed to drive the laser to output a logic low optical signal and the switch is opened to drive the laser to output a logic high optical signal.
21. The method of claim 15, wherein the PNP transistor current source comprises a PNP transistor current mirror.
22. A method for driving a laser comprising:

- receiving a data signal;
operating a first switch and a second switch in response to the data signal; and
supplying one of a first differential current and a second differential current to a laser based on a first position of the first switch and a second position of the second switch,
wherein the first differential current and the second differential current are supplied to the laser by a first PNP transistor current source through a first inductor to a first side of the laser and from a second PNP transistor current source through a second inductor to a second side of the laser.
23. The method of claim 22, wherein the first differential current comprises a bias current and a modulation current.
24. The method of claim 22, wherein the second differential current comprises a bias current.
25. The method of claim 22, wherein the first switch comprises a first transistor switch and the second switch comprises a second transistor switch.
26. The method of claim 25, wherein the first transistor switch comprises a first NPN transistor switch and the second transistor switch comprises a second NPN transistor switch.
27. The method of claim 22, wherein the first switch is closed and the second switch is open to drive the laser to output a logic low optical signal and the first switch is opened and the second switch is closed to drive the laser to output a logic high optical signal.

28. The method of claim 22, wherein the first PNP transistor current source comprises a first PNP transistor current mirror and the second PNP transistor current source comprises a second PNP transistor current mirror.